इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 1589 (1994): Oil, cylinder [PCD 3: Petroleum, Lubricants and their Related Products]

"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

BRUTUM FULMEN
IGNORANTIA JURIS NON EXCUSAT
PROTECTED BY COPYRIGHT

IS 1589 : 1994

(Reaffirmed 2001)

भारतीय मानक

तेल, सिलिंडर — विशिष्टि

(पहला पुनरीक्षण)

Indian Standard

OIL, CYLINDER — SPECIFICATION

(First Revision)

UDC 621.892.096

© BIS 1994

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

December 1994 **Price Group 2**

Lubricants and Related Products Sectional Committee, PCD 4

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Lubricants and Related Products Sectional Committee had been approved by the Petroleum Coal and Related Products Division Council.

Cylinder oils were covered in IS 311 : 1951 to IS 316 : 1951 respectively. In 1960 as decided by the Technical Committee these six standards were amalgamated into one standard namely, IS 1589 : 1960 covering all the four grades of cylinder oils, grading according to operating steam temperature and all the six standards IS 311 : 1951 to IS 316 : 1951 were withdrawn. In defining the scope for each grade, a general indication was given as to the service conditions under which the respective grade of cylinder oils are to be used, as a rough guide to assist in the selection of suitable lubricants and not as authoritative or mandatory instructions. Assistances were derived from the Canadian Government Specifications Board on the subjects and also from the accumulated test data available with the Government Test House, Calcutta and The Defence Research Laboratory (Stores), Kanpur in the preparation of the standard IS 1589 : 1960.

While reviewing this standard, the Technical Committee felt that this standard as well as IS 2660 : 1964 'Specification for oil, cylinder, Grade 4' which covers cylinder oil, Grade 4 suitable for the lubrication of cylinder of steam engines using steam at temperatures between 345°C and 375°C should be rationalized as these oils are used for similar type of applications varying only in steam temperatures. Accordingly, the Technical Committee decided to amalgamate these two standards. The Committee also has taken cognizance of the fact that cylinder oils are not produced indigenously and are required to be imported in future also. As such, due weightage are required to be given to the need for international coordination among standards prevailing in different countries of the world in this field.

In this present revision, various grades have been modified in accordance with the internationally accepted ISO VG grades and rationalized as VG 460, VG 680, VG 1000 and VG 1500 grades respectively. It was also noted that more meaningful results are obtained for flash points and carbon residue when Cleveland Open Cup (COC) method and Conradson Carbon Residue method respectively are employed. Accordingly, these methods have been introduced modifying the requirements. Requirement for viscosity index (VI) has also been modified in line with the internationally available cylinder oil products. With the publication of this revised version of IS 1589, the standard IS 2660 : 1964 Oil, cylinder, Grade 4 would, therefore, become redundant.

This standard is intended chiefly to cover the technical provisions relating to the material, and it does not include all the necessary provisions of a contract.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

OIL, CYLINDER — SPECIFICATION

(First Revision)

1 SCOPE

This standard prescribes the requirements and methods of sampling and tests for four grades of oils, cylinder suitable for the lubrication of cylinders of steam engines at various temperatures (*see also* **3**).

2 NORMATIVE REFERENCES

The following standards contain provisions which through reference in this text constitute the provisions of the standard. At the time of publication, the edition indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standard indicated below:

IS No.	*Title*
1447 : 1966	Method of sampling of petroleum and its products
1448	Methods of test for petroleum and its products

3 GRADES

The material shall be of the following four grades:

a)	Grade VG 460	Suitable for the lubrication of cylinders of steam engines using steam at temperature not exceeding 230°C,
b)	Grade VG 680	Suitable for the lubrication of cylinders of steam engines using superheated steam at temperature not exceeding 290°C (between 230°C and 290°C),
c)	Grade VG 1000	Suitable for the lubrication of cylinders of steam engines using superheated steam at temperature not exceeding 345°C (between 290°C and 345°C), and
d)	Grade VG 1500	Suitable for the lubrications of cylinders of steam engines using superheated steam at temperature between 345°C and 375°C.

4 TYPES

4.1 The material of each grade shall be of two types, namely Type 1 and Type 2.

4.1.1 *Type 1*

The material of Type 1 of all grades is suitable for the lubrication of cylinders of steam engines under conditions in which material of Type 2 of the grade is likely to cause trouble in the elimination of oil from the system due to emulsification with condensed water or due to contamination of crankcase oil by the cylinder oil.

4.1.2 *Type 2*

The material of Type 2 is suitable for the lubrication of cylinders of steam engines under conditions in which no difficulty is experienced in the elimination of oil from the system due to emulsification with condensed water or due to contamination of crankcase oil by the cylinder oil.

5 REQUIREMENTS

5.1 General

5.1.1 The material of Type 1 shall be a pure mineral oil, free from water, grit and other visible impurities (*see* Note 1).

5.1.2 The material of Type 2 shall be a mineral oil compounded with suitable fatty oil (*see* Note 2) and shall be free from water, grit and other visible impurities. It shall be homogeneous and shall not stratify under normal storage conditions (*see* Note 1).

NOTES

1 The material of Type 1 and Type 2 of VG 1500 grade shall not contain any viscosity index improving additives;

2 The commonly used fatty oils are groundnut, rape/ mustard, sesame, lard and wool fat oils, and tallow.

5.2 Detailed Requirement

The material of all the four grades shall comply with the requirements given in Table 1 when tested in accordance with the test methods prescribed in col 11 of the table.

6 PACKING AND MARKING

6.1 Packing

The material shall be packed in metal or any other suitable containers as agreed to between the purchaser and the supplier.

6.2 Marking

The container shall be securely closed and marked with the following:

a) Indication of the source of manufacture;

b) Name, grade and type of the material;

c) Net mass;

d) Date of manufacture;

e) Recognized trade-mark, if any; and

f) Identification in code or otherwise to enable the lot of consignment or manufacture to be traced back.

6.3 BIS Certification Marking

The container may also be marked with the Standard Mark.

6.3.1 The use of the Standard Mark is governed by the provisions of Bureau of Indian Standards Act, 1986 and the Rules and Regulation made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

7 SAMPLING

Representative samples of the material shall be drawn as prescribed in IS 1447 : 1966.

Table 1 Requirements for Oil, Cylinder

(*Clause* 5.2)

Sl No.	Characteristics	Requirements for								Method of Test, Reference to P : of IS 1448
		Grade VG 460		Grade VG 680		Grade VG 1000		Grade VG 1500		
		Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
i)	Kinematic viscosity at 40°C, cSt	414 to 506	414 to 506	612 to 748	612 to 748	900 to 1 100	900 to 1 100	1 350 to 1 650	1 350 to 1 650	P : 25
ii)	Viscosity index, *Min*	80	80	80	80	80	80	80	80	P : 25
iii)	Flash point, °C (COC), *Min*	280	280	280	280	280	280	280	280	P : 21
iv)	Acidity, inorganic mg KOH/g of the oil, *Max*	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	P : 2
v)	Acidity, total (TAN) mg KOH/g of the oil, *Max*	0.7	1.0	0.25	1.0	0.25	1.0	0.25	1.0	Method A of P : 2
vi)	Conradson carbon residue, percent by weight, *Max*	3.0	3.0	3.5	3.5	3.5	3.5	4.0	4.0	P : 8
vii)	Pour point, °C, *Max*	15	15	15	15	15	15	15	15	P : 10
viii)	Ash, percent by weight, *Max*	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	Method A of P : 4
ix)	Copper-strip corrosion for 3 h at 100°C	Not worse than No. 1		Not worse than No. 1		Not worse than No. 1		Not worse than No. 1		P : 15
x)	Saponification value (mg KOH/g)	1.0 *Max*	9 to 14	1.0 *Max*	9 to 14	1.0 *Max*	9 to 14	1.0 *Max*	9 to 14	P : 54

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act, 1986* to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has a copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such a review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Handbook' and 'Standards Monthly Addition'.

This Indian Standard has been developed from Doc : No. PCD 4 (1268).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 331 01 31, 331 13 75

Telegrams : Manaksanstha
(Common to all Offices)

Regional Offices:	Telephones
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	331 01 31 331 13 75
Eastern : 1/14 C.I.T. Scheme VII M, V.I.P. Road, Maniktola CALCUTTA 700054	37 84 99, 37 85 61 37 86 26, 37 86 62
Northern : SCO 445-446, Sector 35-C, CHANDIGARH 160036	53 38 43, 53 16 40 53 23 84
Southern : C.I.T. Campus, IV Cross Road, MADRAS 600113	235 02 16, 235 04 42 235 15 19, 235 23 15
Western : Manakalaya, E9 MIDC, Marol, Andheri (East) BOMBAY 430093	632 92 95, 632 78 58 632 78 91, 632 78 92

Branches : AHMADABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. PATNA. THIRUVANANTHAPURAM.

Reprography Unit, BIS, New Delhi, India